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The Kentucky Cabinet for Health & Family Services
Department for Public Health Division of Epidemiology
and Health Planning HIV/AIDS Branch presents

HIV/AIDS Professional Education for Kentucky … Making It Count

This course meets the licensure requirements of KRS 214.610/615/620 for all professions.
CHFS Approved HIV/AIDS Course #0415-1566-M

Course Details

Planning Committee: The following activity planners disclose they have nothing to disclose. Greg Lee, Vivellen Chesser

Author: The following author discloses they have nothing to disclose. Greg Lee

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Objectives

At the end of this course, each participant will be able to:

--Summarize medical and epidemiological information about HIV and the diseases and conditions it can cause.
--Understand and describe methods of transmission and prevention of HIV and current recognized methods of medical treatment.
--Define management of HIV in the healthcare workplace and other working environments, consistent with OSHA Bloodborne Pathogens Standards.
--Apply appropriate attitudes & behaviors toward those infected with HIV.
--Identify comprehensive human services available to assist those with HIV infection.
--Understand HIV and AIDS Reporting Requirements. Identify legal issues surrounding HIV infection.

Course Key Points

1. Basic medical information about HIV (structure of HIV, affinity for CD4+, role of CD4+ cells in the immune system)
2. Tests used to diagnose HIV infection (ELISA, Western blot, oral tests, etc.)
3. Immune system damage, disease progression, opportunistic infections that define AIDS
4. Current medical treatment for HIV infection (HAART, phenotypic/genotypic resistance testing)
5. All methods of transmission (body fluids relate back to HIV's affinity to CD4+) - sex, blood contact, and perinatal
6. Prevention for all transmission modes (include condoms, not sharing needles, use of bleach with needles, etc.)
7. Perinatal prevention
8. OSHA bloodborne pathogens standards (body fluids, handling of sharps, not recapping needles, gloves, etc.)
9. HIV post-exposure prophylaxis (include all drugs used to treat)
10. Identified risk behaviors

Course Key Points

11. Current HIV/AIDS epidemiology (includes trends relating to minorities)
12. Cultural sensitivity of the caregiver toward the HIV infected person (recognition of family, cultural norms and variations)
13. Homophobia and attitudes toward injecting drug users – How a person became infected is not the issue for the caregiver
14. Awareness of the caregivers' prejudices toward certain risk behavioral practices
15. Legal issues: Americans with Disabilities Act, Consent, Confidentiality
16. Case Reporting Law
17. Patient Interviewing & risk assessment
18. Completing Case Report Forms (adult and pediatric)
19. Services available through Kentucky's Ryan White & state funded services programs
20. Community-based organizations

Chapter One:

Basic Medical Information about HIV
Testing for HIV

An Epidemic is Born

The **H**uman **I**mmunodeficiency **V**irus (**HIV**) is a retrovirus that can lead to **A**cquired **I**mmune **D**eficiency **S**yndrome (**AIDS**), a condition in humans in which the immune system begins to fail, leading to life-threatening opportunistic infections. Our awareness of the AIDS epidemic officially began on June 5, 1981, when the U.S. Centers for Disease Control and Prevention in the "Morbidity and Mortality Weekly Report" announced unusual clusters of Pneumocystis jiroveci (carinii) pneumonia (PCP) in five men in Los Angeles.

However, these were not the first cases of AIDS.

Retrospective studies show that HIV was present in humans as early as 1959.

A 2007 study published in the Proceedings of the National Academy of Sciences claimed that, based on the results of genetic analysis, HIV probably moved from Africa to Haiti and then entered the United States around 1969.

Viral Origins: HIV-1 & HIV-2

HIV is thought to have originated during the twentieth century from a virus ("SIV") found in southern Cameroon's wild chimpanzees. Humans became infected from hunting the chimps as "bushmeat."

There are two types of HIV that can infect humans: HIV-1 and HIV-2.

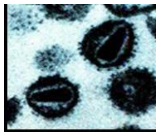
HIV-1 is the virus that was initially discovered. It is more virulent and relatively easily transmitted and is the cause of the majority of HIV infections globally.

HIV-2 is most likely the older of the two viruses, and may have originated from the Sooty Mangabey found in Guinea-Bissau, Gabon, and Cameroon. HIV-2 is less transmittable than HIV-1 and is largely confined to West Africa (and is relatively rare in the United States).

HIV-1 infection also progresses to AIDS faster than HIV- 2 infection.

This course pertains primarily to HIV-1.

Viral Relationships with Cells



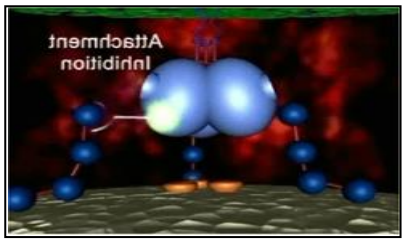
Viruses are considered non-living because they do not use energy to grow or to respond to their surroundings. Viruses are little more than genetic information (DNA, or RNA in the case of "retroviruses" like HIV) wrapped in a protective outer coating. Viruses don't serve any purpose but to exist and make more viruses.

However, they cannot actually reproduce on their own. Instead, their genetic information takes control over the cell the virus infects and retools the cell to make copies of the virus. They hitchhike their way into existence by using cells to replicate (duplicate) them. This process damages or even destroys the host cell.

Not just any cell can be infected with any virus. The protein structures on the surface of the virus need to be "specifically sticky" to the counterpart protein structures on the surface of the host cell.

Viral Relationships with Cells

Video generously provided by Roche



For HIV, the surface glycoprotein "gp120" has this affinity for "CD4+" on the surface of certain human cells. CD4+ (cluster of differentiation 4) is a glycoprotein expressed on the surface of T-helper cells, regulatory T-cells, monocytes, macrophages, and dendritic cells. These cells are the potential hosts to HIV.
Insects cannot carry HIV – even those that bite. Mosquitoes do not transfer HIV. If they did, most of us would have been infected by now.
Pets that belong to people with HIV are not at risk of becoming infected.

Viral Relationships with Cells

Since target cells for HIV infection are not commonly found in most body fluids encountered casually and in public, HIV transmission is fairly limited. Fortunately, HIV's host cells are not found in sweat, tears, urine, feces, sputum, non-bloody saliva, vomit or nasal secretions.
So these fluids are barren environments for HIV. Likewise, these fluids do not transmit HIV.
And that's a good thing. Because you have probably encountered these fluids from another person several times today already (on a door knob, toilet handle, telephone, computer keyboard, etc.). Some viruses (such as those that cause the common cold and the flu) can be transmitted these ways. That's because they have different host cells than HIV, which are found in nasal secretions, sputum, etc.
Understanding the dependency of viruses to their host cells is the key to understanding HIV transmission and the nature of the AIDS pandemic.

Viral Relationships with Cells

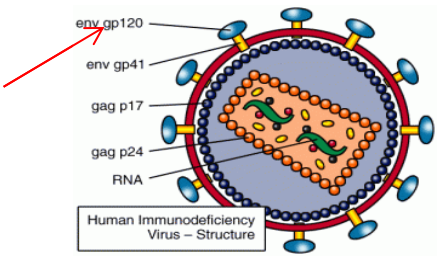
People with HIV have been living and walking amongst us since the late 1970's.
At least one person with HIV has sneezed or coughed near you. They have prepared your food. They have shaken your hand. They have cared for your children. They have used the same public toilets and phones and swimming pools as you have for the past 30 years. And you haven't been infected from these contacts because …

… HIV is not casually transmitted.

Yet, in 2006 a Kaiser Family Foundation Study found that 37% of the public believed that HIV was transmitted through kissing. The study also showed that 22% of the public believe that sharing a glass will transmit HIV, and 16% believe that HIV can be transmitted through touching a toilet seat.

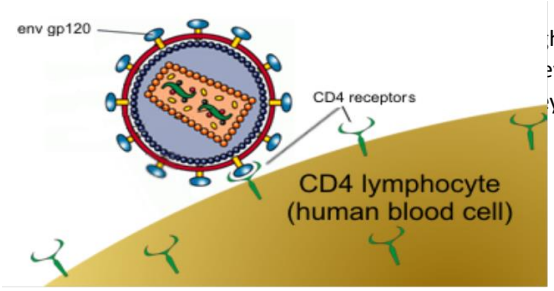
HIV Components

HIV appears at first to be a simple virus, consisting of just nine genes. Yet it makes up for that bare-bones structure in a sinister and complex way — by literally taking over the cellular machinery of its victims so it can multiply and destroy.
This diagram shows the components of HIV and some of the involved protein structures. It is the envelope surface glycoprotein (gp120) that is "specifically sticky" to CD4+ on cell surfaces.



HIV Components

Without cells with CD4+ on their surface, HIV has no hope of existence.



…h these cells are not found in sweat, saliva,
…ey are found in blood and a few other fluids.
…y are very important cells to the immune
Once inside, HIV damages its host cell.

HIV Components

Here's what happens once HIV is inside these cells …

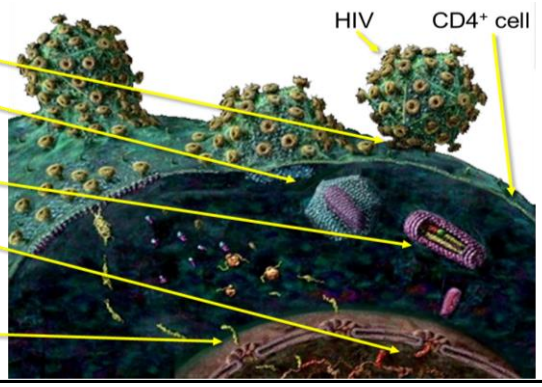
The virus attaches to cell surface (gp120 to CD4⁺).

Virus core enters cell.

Viral RNA is converted to DNA (through process called "reverse transcriptase").

Viral DNA enters cell nucleus and combines with host cell's DNA.

RNA copies are made, which leave the nucleus.



HIV Components

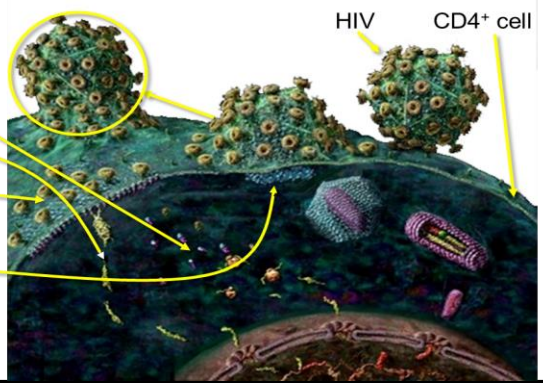
Here's what happens once HIV is inside these cells …

New viral proteins.

New viral RNA.

New viral components congregate at cell surface.

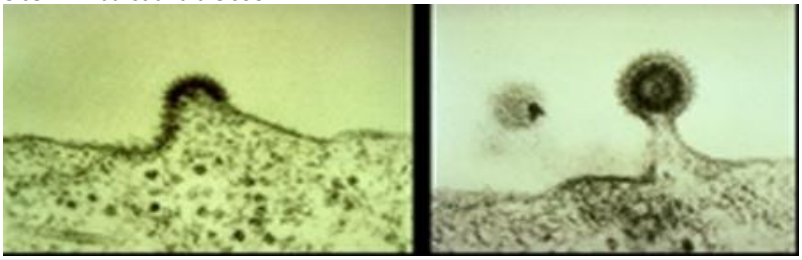
New viral particles "bud" from cell, rupturing cell wall.



HIV's "Life" Cycle

(remember, viruses are not actually alive)

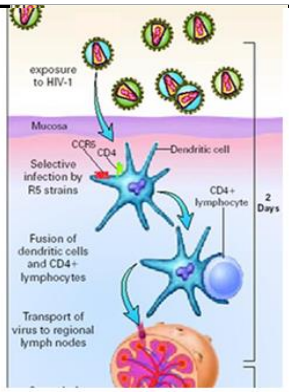
Here you can see the cell with HIV **budding** from it, puncturing the cell membrane as the new viral particles are propelled out of the cell. The cell will burst and die soon.



HIV's "Life" Cycle

Day 1: Exposure to HIV

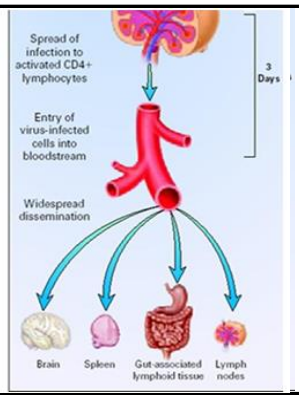
Day 1-2: Virus collected by dendritic cells, carried to lymph node



Kahn JO, Walker BD. N Engl J Med. 1998;339:33-39

Day 4-11: HIV replicates in CD4 cells, released into blood

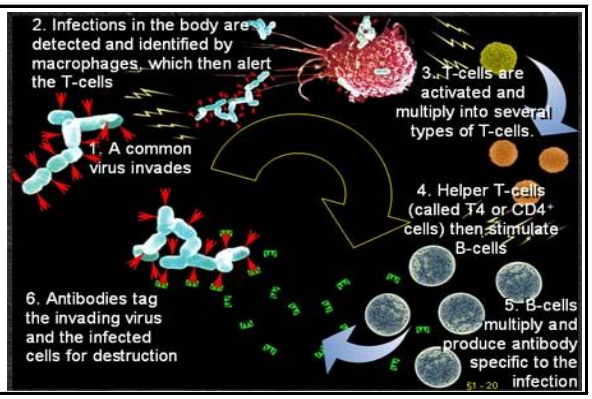
Day 11+: Virus spreads to other organs



The Immune System Response

CD4+ cells include several types of human blood cells. One key target of HIV is the CD4+ lymphocyte, "helper T-cells" or simply "T4-cells" of the immune system.

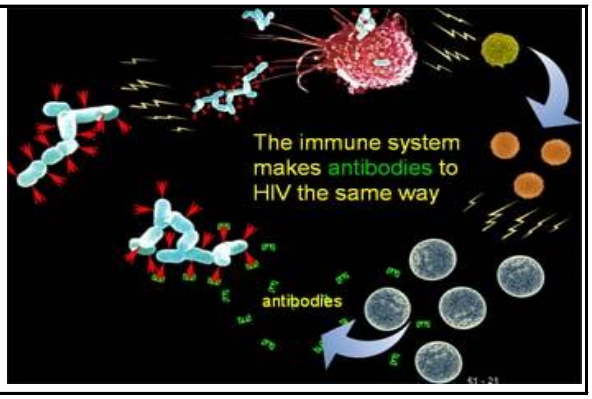
These helper T-cells play a vital role in the body's immune system:



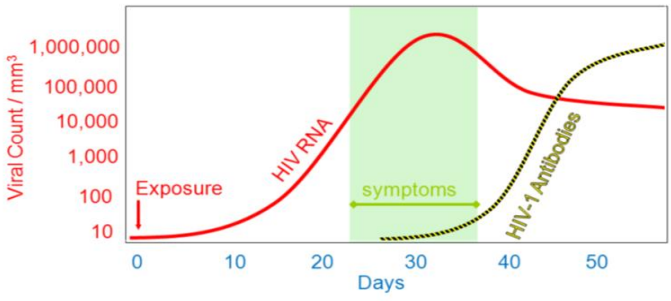
The Immune System Response

CD4+ cells include several types of human blood cells. One key target of HIV is the CD4+ lymphocyte, "helper T-cells" or simply "T4-cells" of the immune system.

The "seroconversion period" or "window period" refers to the period of time it usually takes to develop detectable antibodies following infection with HIV. In 75% of persons infected, antibodies are produced in 4 to 8 weeks; in almost all persons, antibodies are produced within 14 weeks.



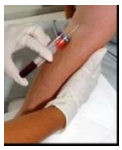
HIV Antibody Development



Antibody conversion typically 22-27 days following infection

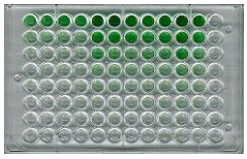
HIV Antibody Tests

"AIDS" is the end-stage of HIV disease, so technically there is no such thing as an "AIDS test." Testing for HIV usually involves the detection of antibodies (not the virus or disease process itself). There are several types of HIV tests on the market. In most cases the ELISA or EIA (enzyme-linked immunosorbent assay), used on blood drawn from a vein, is used to look for antibodies to HIV. A positive (reactive) ELISA must be followed-up (confirmed) with a test such as the Western blot to make a positive diagnosis.



Blood tests for HIV antibodies are available (along with pre-test and post-test counseling, referral and partner notification) at every county health department throughout Kentucky.

The ELISA



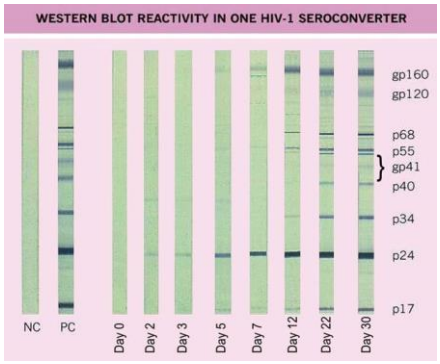
In the lab, the ELISA test uses a plate that contains many wells filled with a solution containing HIV antigen. The antigen sticks to the surface of each well. The solution containing the serum (part of the blood that contains antibodies) is added to each well.

Specific antibodies in the serum bind to the antigen, and remain in the well after they are washed. A series of dilutions (1:400) of the serum has to be done, and each one tested. A beam of light is passed through each well and the optical density is measured. The wells that reach the given threshold for optical density through the series of dilutions are the ones who have HIV. ELISA tests are extremely sensitive (meaning that if HIV antibodies are present, it is very likely to test positive). But the ELISA tests are NOT as specific, so any reactive ELISA must be repeated, and followed up with a Western blot test … which is extremely specific.

The Western Blot

In this example, progression of HIV antibody development can be seen from left to right. Each column is a separate Western blot result taken from a newly infected person over a 30-day period. The first two on the left are the negative (NC) and positive controls (PC).

Each black or dark grey horizontal stripe is representative of the presence of a different antibody against a protein found in HIV. To be conclusive (HIV- positive), a Western Blot must have 5 horizontal stripes.



More HIV Antibody Tests

There are also tests that use other body fluids to look for antibodies to HIV. These include:

Urine Tests use urine instead of blood. The sensitivity and specificity (accuracy) are somewhat less than that of the blood and oral fluid tests. This is also an ELISA antibody test similar to blood ELISA tests and requires a follow-up confirmatory Western Blot using the same urine sample.

Oral Fluid Tests use oral fluid (not saliva) that is collected from the mouth using a special collection device. This is an ELISA antibody test similar to the standard blood ELISA test. All reactive rapid tests require confirmation. Examples include OraSure® (which includes a follow-up confirmatory Western blot using the same sample) and OraQuick®.

Where to Get Rapid HIV Antibody Tests

OraQuick® Advance™ Rapid HIV-1/2 tests are a type of screening performed on oral mucosal transudate in which results are ready in 20 minutes. Preliminary positive results require confirmation. Several agencies are currently using OraQuick® rapid testing, and the list of agencies is being continuously expanded:

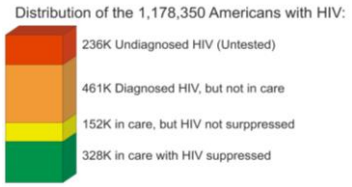
Ashland: Ashland-Boyd County Health Department
Bowling Green: Barren River Health Department
Western Kentucky University Health Services
Elizabethtown: Lincoln Trail District Health Department **Frankfort:**
Franklin County Health Department
Kentucky Department for Public Health
Hazard - Kentucky River Health Department
Henderson: Matthew 25 AIDS Services
Hopkinsville: Christian County Health Department
Jamestown - Russell County Health Department
Lexington: AIDS Volunteers of Lexington (AVOL)
Black & Williams Neighborhood Center
Bluegrass Community Health Center
Lexington-Fayette County Health Department
Planned Parenthood of the Bluegrass
Louisville: Louisville Metro Public Health and Wellness
Park Duvalle Community Health Center
Planned Parenthood
Volunteers of America, Kentucky
Maysville: Buffalo Trace Health Department
Northern Kentucky: Area Health Education Center - Park Hills
Boone County Health Department - Florence
Northern Kentucky District Health Deptartment - Edgewood
Owensboro: Owensboro AIDS Taskforce
Paducah: Heartland Cares
Purchase Area Health Department
Pikeville: Pike County Health Department
Pineville: Cumberland Valley Health Department **Shepherdsville:**
Bullitt County Health Department
Somerset: Pulaski County Health Department

HIV Antibody Testing Recommendations

One-fifth of the people with HIV in the U.S. have never tested.

The Centers for Disease Control and Prevention now recommends that HIV testing and HIV screening be part of routine clinical care in all health care settings. The CDC also has stated it suggests that the patient's right to refuse be preserved in order to facilitate a good working relationship between patient and doctor.

The following summarizes the HIV testing recommendations from the CDC.



Who Should Be Screened?

Patients in all health care settings.
Persons at risk for HIV infections should be screened annually.
ALL Pregnant women as part of prenatal screening.

HIV Antibody Testing Recommendations

HIV screening is recommended for patients in all health-care settings, after the patient is notified that testing will be performed unless the patient declines (opt-out screening).
Separate written consent for HIV testing is not required as long as the general consent for medical care sufficiently provides informed consent for HIV testing.

Although critical at some early point in the continuum of care, prevention counseling should not be mandated at the time of HIV diagnostic testing or as part of HIV screening programs in health-care settings.

Fundamentals of HIV Prevention Counseling ("Pre-test Counseling")

"Prevention Counseling" is a client-focused exchange designed to support people in making behavioral changes to reduce their risk of acquiring or transmitting HIV.

Two critical components:

Client-focused: counseling is tailored to the behavior, circumstances, and special needs of a person.

Focus on personal risk assessment and development of a personalized action plan.

Concepts of Prevention Counseling

Focus on feelings (Refers to the importance of acknowledging client's feelings first. Clients are more likely to engage in a counseling session when counselors are willing to bring up, listen to, and respond to their feelings.)

Manage personal discomfort (Refers to the importance of managing your values in a counseling session. The goal is to manage our discomfort and not let it hinder the relationship with the client.)

Set boundaries (The client is in charge of making decisions about his/her life and in carrying out those decisions. By supporting self-determination, we accept that clients may make choices that we may not agree with. Remember: Establish boundaries and respect your client's decisions about his/her life.)

Basic Counseling Skills

Asking open-ended questions: Open-ended questions require more than "yes" or "no" response. They solicit more information from client. Open-ended questions ususally begin with who, what, when, where, and sometimes why.

Attending: Display active listening through eye contact and non-verbal body language. Verbally "follow" the client by using brief encouraging words ("Uh-hum," "Yes") or by repeating key words.

Offering options, not directives: This is a technique used to place control in client's hands by offering the client a "buffet" of options, allowing the client to choose from the buffet what is best for him or her, and by normalizing and confirming potential client decisions.

Giving information simply: Use simple, non-technical words. Be brief and to the point. Address client needs specific to his/her concerns. Say "I don't know" when you don't. It's okay!

Six Steps of HIV Prevention Counseling

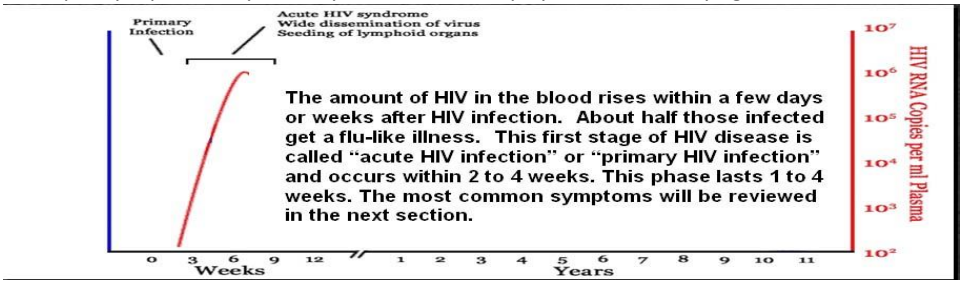
Use the acronym "CIGARS" to help remember these six steps:

1. **"C"** *Introduce and orient the CLIENT to the session*
2. **"I"** *Talk with client to IDENTIFY their risk behaviors and circumstances*
3. **"G"** *Identify safer GOAL behaviors that are acceptable and realistic for the client*
4. **"A"** *Help the client come up with their own ACTION plan to reduce risk, even if incrementally*
5. **"R"** *Make REFERRALS and provide support*
6. **"S"** *SUMMARIZE and close the counseling session*

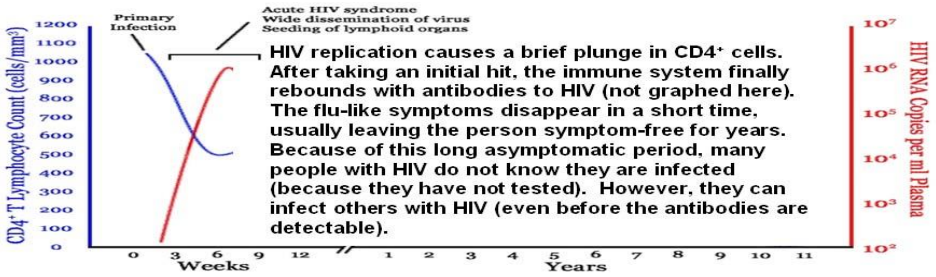
HIV Damages Immune System

Unfortunately, antibodies developed for HIV do not eliminate the infection.

Instead, HIV is quickly replicated by the very cells that should play a role in destroying the virus.

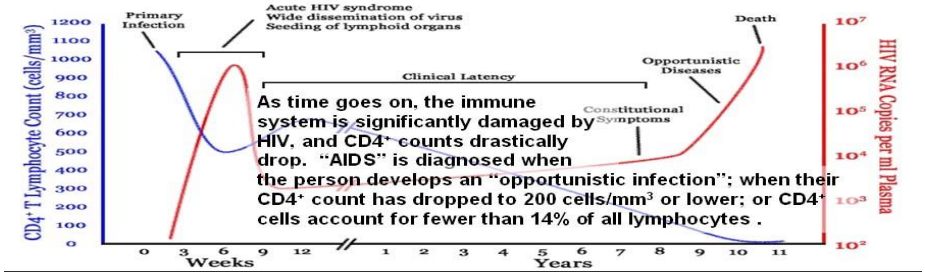


HIV Damages Immune System



HIV Damages Immune System

(Normal CD4+ counts range from 500 to 1500 cells per cubic millimeter of blood.)



HIV/AIDS – Clinical Category A

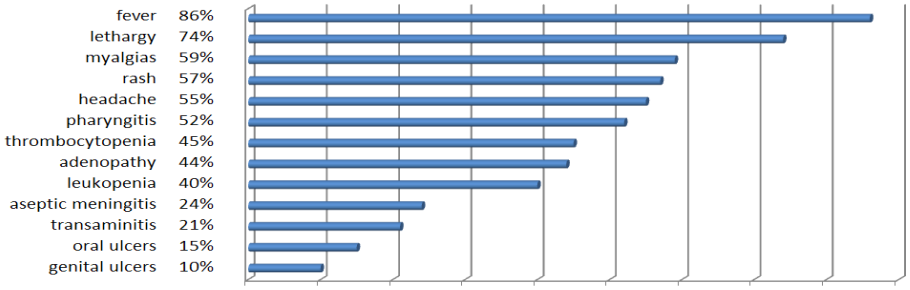
AIDS is not one specific disease. AIDS is a syndrome (a group of symptoms that are characteristic of a disorder). Not all people with AIDS will experience the same course of illness. In 1993 the CDC formed three clinical categories of HIV infection:

Category A consists of one or more of the conditions listed below in an adolescent (13+ years) or adult with documented HIV infection. Conditions listed in Categories B and C (discussed next) must not have occurred.

- Asymptomatic HIV infection
- Persistent generalized lymphadenopathy
- Acute (primary) HIV infection with accompanying illness or history of acute HIV infection

HIV/AIDS – Clinical Category A

Acute (primary) HIV infection's common signs & symptoms



HIV/AIDS – Clinical Category B

Category B consists of symptomatic conditions in an HIV-infected adolescent or adult that are not included among conditions listed in clinical Category C and that meet at least one of the following criteria:
the conditions are attributed to HIV infection or are indicative of a defect in cell-mediated immunity; or the conditions are considered by physicians to have a clinical course or to require management that is complicated by HIV infection.
For classification purposes, Category B conditions take precedence over those in Category A. For example, someone previously treated for oral or persistent vaginal candidiasis (and who has not developed a Category C disease) but who is now asymptomatic should be classified in clinical Category B.

HIV/AIDS – Clinical Category B

Examples of conditions in clinical Category B include, but are not limited to …

- Bacillary angiomatosis
- Candidiasis, oropharyngeal (thrush)
- Candidiasis, vulvovaginal; persistent, frequent, or poorly responsive to therapy
- Cervical dysplasia (moderate or severe)/cervical carcinoma in situ
- Constitutional symptoms, such as fever (38.5o C = 101.3o F) or diarrhea lasting greater than one month
- Oral Hairy Leukoplakia
- Herpes zoster (shingles), involving at least two distinct episodes or more than one dermatome
- Idiopathic thrombocytopenic purpura
- Listeriosis
- Pelvic inflammatory disease, particularly if complicated by tubo-ovarian abscess
- Peripheral neuropathy

HIV/AIDS – Clinical Category C

Category C includes the clinical conditions listed in the original AIDS surveillance case definition from the 1980's. For classification purposes, once a Category C condition has occurred, the person will remain in Category C.

In other words, once a person is diagnosed with AIDS, they are always said to have AIDS (even if they return to health with an undetectable viral load).

AIDS – Surveillance Definition

In 1993, the CDC expanded their surveillance definition of AIDS to include all HIV positive people with a CD4+ T cell count below 200 per µL of blood or 14% of all lymphocytes.

A diagnosis of AIDS is made in one of three ways:

1 whenever a person is HIV-positive AND has a CD4+ cell count below 200 cells per microliter blood
2 whenever a person is HIV-positive AND their CD4+ cells account for fewer than 14 percent of all lymphocytes
3 whenever a person has been diagnosed with one or more of the AIDS-defining illnesses otherwise known as "Opportunistic Infections."

The AIDS case definitions for adults and children are similar, with several exceptions; lymphoid interstitial pneumonia/pulmonary lymphoid hyperplasia and multiple or recurrent serious bacterial infections are AIDS- defining only for children. Several others, including certain types of cytomegalovirus and herpes simplex virus infections and toxoplasmosis of the brain, are AIDS-defining only for adults and for children older than one month of age.

AIDS – Surveillance Diagnostic Criteria

AIDS-defining illnesses:

Candidiasis of bronchi, trachea, or lungs or esophageal
Cervical cancer, invasive
Coccidioidomycosis, disseminated or extrapulmonary
Cryptococcosis, extrapulmonary
Cryptosporidiosis, chronic intestinal (greater than 1 month's duration)
Cytomegalovirus disease (other than liver, spleen, or nodes)
Cytomegalovirus retinitis (with loss of vision)
Encephalopathy, HIV-related
Herpes simplex: chronic ulcer(s) (greater than 1 month's duration); or bronchitis, pneumonitis, or esophagitis
Histoplasmosis, disseminated or extrapulmonary
Isosporiasis, chronic intestinal (greater than 1 month's duration)

AIDS – Surveillance Diagnostic Criteria

AIDS-defining illnesses (continued):

Kaposi's sarcoma
Lymphoma, Burkitt's (or equivalent term); Lymphoma, immunoblastic (or equivalent term)
Lymphoma, primary, of brain
Mycobacterium avium complex or M. kansasii, disseminated or extrapulmonary
Mycobacterium tuberculosis, any site (pulmonary or extrapulmonary)
Mycobacterium, other species or unidentified species, disseminated or extrapulmonary
Pneumocystis jiroveci (carinii) pneumonia
Pneumonia, recurrent
Progressive multifocal leukoencephalopathy
Salmonella septicemia, recurrent
Toxoplasmosis of brain
Wasting syndrome due to HIV

Chapter Two:

Treatment for HIV;
Resistance Testing;
HIV Transmission and Prevention

Treatment

HIV infection is permanent. With recent study failures, hopes for a vaccine are now looking more slim than ever. And after a generation of research, there is still no known cure for HIV disease.

Eventually, one or more Opportunistic Infections (OIs) can kill a person with AIDS. Prophylactic drugs are available and can help to prevent some of the OIs. But while many OIs are treatable, some have no effective therapy at all.

Treatment options for people with HIV disease have gotten much better over the years. In addition to the many drugs used to treat OIs, many of the pharmaceutical advances in AIDS have to do with the advent of antiretroviral drugs that target HIV in several ways

Highly Active Antiretroviral Therapy (HAART)

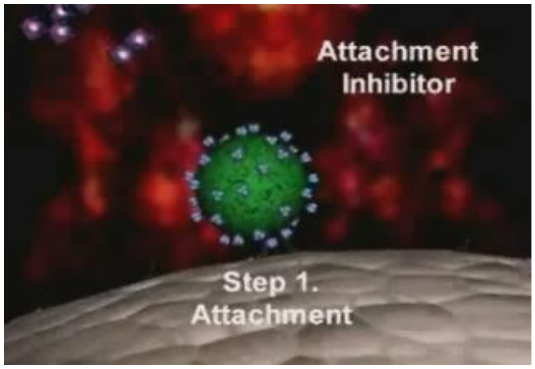
The term HAART (Highly Active Antiretroviral Therapy) is used when referring to the combining of several antiretroviral drugs (often called a "drug cocktail").

Currently there are several classes of HAART drugs, each attempting to interfere with different viral processes:

- Nucleoside/Nucleotide Reverse Transcriptase Inhibitors (NRTIs)
- Non-Nucleoside Reverse Transcriptase Inhibitors (nNRTIs)
- Protease Inhibitors (PIs)
- Fusion Inhibitors
- CCR5 Coreceptor Antagonists (Entry Inhibitors)
- Integrase Inhibitors

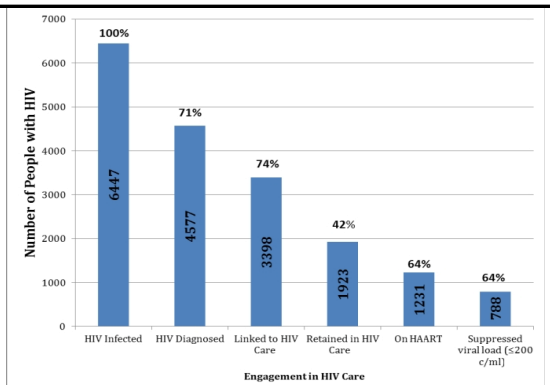
Viral Processes and HAART

Video generously provided by Roche



Percentage of HIV Infected Persons Engaged in Selected Stages of the Continuum of Care

Kentucky 2009



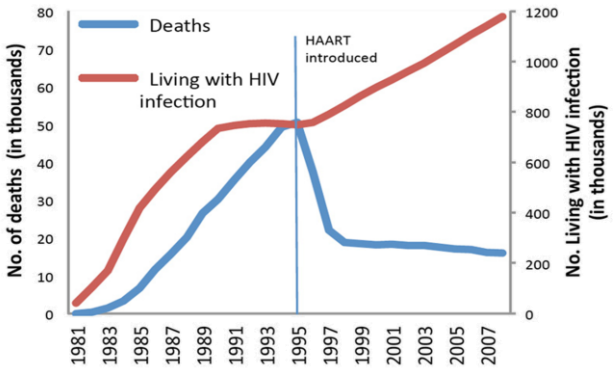
Goals of HAART

Improved quality of life
Reduction of HIV-related morbidity and mortality
Restoration and/or preservation of immunologic function
Maximal and durable suppression of viral load

Tools to Achieve Goals

Selection of antiretroviral regimen
Preservation of future treatment options
Rational sequencing of therapy
Maximizing adherence & Use of resistance testing in selected clinical settings

With the advent of HAART, more people are living with HIV infection (red) as rates of AIDS-related deaths decline (blue).



Indications for Initiation of HAART in treatment-naïve patients

January 2011 DHHS Antiretroviral Therapy Guidelines	
Initiating Therapy in Antiretroviral-Naïve Patients	
CD4 Cell Count	**Recommendation for Antiretroviral Therapy**
<350 cells/mm³	Strongly Recommend Initiating Therapy
350-500 cells/mm³	Recommend Initiating Therapy
>500 cells/mm³	Consider Initiating Therapy
Initiating Antiretroviral Therapy Regardless of CD4 Cell Count	
• History of AIDS-defining illness • Pregnancy • HIV associated nephropathy • Hepatitis B virus (HBV) co-infection when treatment of HBV is indicated	

HIV Resistance to HAART

HIV becomes “resistant” to a drug if it keeps multiplying rapidly while taking the drug. Changes (mutations) in the virus cause resistance. HIV mutates almost every time a new copy is made. Not every mutation causes resistance.

The “wild type” virus is the most common form of HIV. Anything different from the wild type is considered a mutation.

An antiretroviral drug will not control a virus that is resistant to it. It can “escape” from the drug. If the drug is continued, the resistant virus will multiply the fastest. This is called “selective pressure.”

If medications are stopped, there is no selective pressure. The wild type virus will multiply the fastest. Although tests may not detect any drug resistance, it might come back if the same drugs are reintroduced.

Resistance testing helps health care providers make better treatment decisions for their patients.

How HIV Resistance Develops

HIV resistance to medication is caused by missing doses.

HIV usually becomes resistant when it is not totally controlled by HAART. However, more people are getting infected with HIV that is already resistant to one or more HAART drugs before they have taken these drugs themselves.

The more that HIV multiplies, the more mutations show up. These mutations happen by accident. The virus does not “figure out” which mutations will resist medications.

Just one mutation can make HIV resistant to some drugs. This is true for 3TC (Epivir) and the non-nucleoside reverse transcriptase inhibitors (nNRTIs). However, HIV has to go through a series of mutations to develop resistance to other drugs, including most protease inhibitors.

The best way to prevent resistance is to control HIV by taking strong antiretrovirals. If doses of medication are missed, HIV multiplies more easily.

More mutations will occur. Some of them could cause resistance.

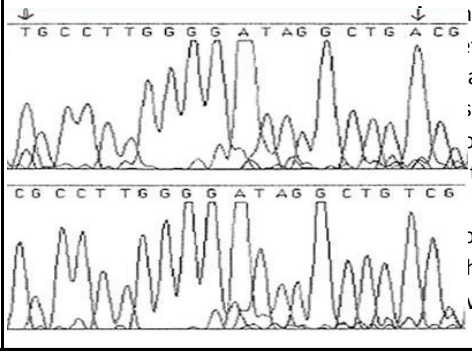
Types of HIV Resistance

There are three types of resistance:

Clinical resistance: HIV multiplies rapidly in the body, regardless of HAART.
Phenotypic resistance: HIV multiplies in a test tube when HAART is added.
Genotypic resistance: The genetic code of HIV has mutations that are linked to drug resistance.

Clinical resistance shows up as a higher viral load, lower CD4+ count, or opportunistic infections. Laboratory tests can measure phenotypic and genotypic resistance. However, the tests are not good at detecting "minority" mutations (less than 20% of the virus population). Also, they work better when the viral load is higher. If the viral load is very low, the tests might not work. Tests usually cannot be run if the patient's viral load is less than 500 to 1,000 copies per ml.

Phenotypic Testing for Resistance



…ple of HIV is grown in the laboratory. A dose of one
…troviral is added. The growth rate of the HIV is
…ared to the rate of wild type virus. If the sample
…s more than normal, it is resistant to the medication.
…otypic resistance is reported as "fold" resistance.
…test sample grows twenty times as much as normal,
…"20-fold resistance."
…otypic tests cost about $800. It used to take over a
…h to get the results. New phenotypic tests are
…what quicker.

Cross-Resistance to HAART

The genetic code of the sample virus is compared to the wild type. The code is a long chain of molecules called nucleotides. Each group of three nucleotides, called a "codon," defines a particular amino acid used to build a new virus. Genotypic testing costs about $250 and take about 2 weeks. =
"Virtual Phenotypic Testing"
This test is really a method of interpreting genotypic test results. First, genotypic testing is done on the sample. Phenotypic test results for other virus samples with a similar genotypic pattern are taken from a database. These matched samples tell you how the virus is likely to behave. The virtual phenotype is faster and less expensive than a phenotypic test.
Recent research suggests that a genotypic resistance testing should be done for every patient before they start taking HAART. This saves health and money by not putting someone on drugs that will fail them.

Cross-Resistance to HAART

Sometimes a mutant version of HIV is resistant to more than one drug. When this happens, the drugs are called "cross-resistant." For example, most HIV that is resistant to nevirapine (Viramune) is also resistant to efavirenz (Sustiva).
This means that nevirapine and efavirenz are cross-resistant.
Cross-resistance is important when you change medications. Choose new drugs that are not cross-resistant to drugs already taken.
Cross-resistance is not totally understood. However, many drugs are at least partly cross-resistant. As HIV develops more mutations, it gets harder to control.
Every HAART dose must be taken according to instructions.
This reduces the risk of resistance and cross-resistance. It also saves the most options for changing medications in the future.

What is HAART

Consider these points when choosing an initial HAART regimen:

- Three main categories of regimens used:
  - 1 nNRTI + 2 NRTIs
  - 1 PI + 2 NRTIs
  - 3 NRTIs
- A combination of nNRTI or PI plus 2 NRTIs preferred for most patients.
- There are few clinical endpoints to guide choices.
- Each type of regimen has its own advantages and disadvantages.
- Individualize the regimen choice.

What is NOT HAART

NEVER treat HIV with only one drug (monotherapy) – except possibly zidovudine (AZT) used to prevent perinatal HIV transmission. Otherwise, monotherapy is MALPRACTICE. Monotherapy causes viral resistance to antiviral drugs. Often entire classes of antiviral drugs become useless when one drug in the class fails.

Dual NRTI therapy is NOT HAART (should add a PI or nNRTI)

3-NRTI regimens is not HAART (except abacavir/lamivudine/zidovudine and possibly lamivudine/zidovudine/tenofovir)

NRTI-sparing regimens is not HAART

What HAART is NOT

- HAART is not a cure for HIV or AIDS. Although HAART drugs can reduce the viral burden, none of them eradicate HIV.
- HAART is not the solution to the epidemic. Drug resistant strains of HIV often develop after treatment is began, especially if the patient is non- adherent to the drug regimen. These resistant strains of HIV are now being transmitted to new cases, increasing the complexity of dealing with the epidemic and treating the newly infected.
- HAART does not make unprotected sex safe. Even those with HIV who have successfully reduced their viral burden down to undetectable levels can and do still infect others with HIV.
- HAART is not an excuse to forget about safer sex, IDU harm reduction, or universal precautions.

Prevention – More Effective and Cheaper than HAART!

The cost of HAART is usually over $1,000 per month. Condoms ≈ 25¢ each. With new infections now including drug-resistant strains of HIV, and with little chance of an effective vaccine, prevention remains the only real hope to stop HIV.

HIV infection is 100% preventable. Remember, because of the presence of target cells in these fluids, HIV can be found in: BLOOD, SEMEN, VAGINAL SECRETIONS

Prevention recommendations simply outline ways to avoid sharing such fluids.

The safest way to prevent HIV infection is to abstain from sex and injectable drug use. Abstinence excludes all physical sexual contact, not just intercourse.

However, as HIV and STD rates indicate later in this course, not all people choose to abstain from sex, especially in the US where abstinence-only programs have been mandated for years. It is critical that healthcare providers and educators understand and teach safer sex and harm reduction recommendations.

Understanding Transmission = Understanding Prevention

Transmission of HIV occurs when an infected person's blood, semen or vaginal secretions enters an uninfected person's body, allowing HIV access to target cells. There are only a few ways this is likely to happen with infectious body fluids:

Blood -- injecting drug use, sexual transmission, healthcare, perinatal

Semen -- sexual transmission

Vaginal secretions -- sexual transmission

Blood is more infectious than semen.

Semen (including pre-ejaculate) is more infectious than vaginal secretions.

The more fluid encountered, the higher the risk of infection.

The likelihood of infection also increases with the number of times exposed.

Understanding Transmission = Understanding Prevention

Exposure Route	Estimated infections per 10,000 exposures to infected source
Blood Transfusion	9,000
Childbirth	2,500
Needle-sharing injection drug use	67
Receptive anal intercourse without condom	50
Percutaneous needle stick	30
Receptive penile-vaginal intercourse without condom	10
Insertive anal intercourse without a condom	5
Insertive penile-vaginal intercourse without condom	5
Receptive penile-oral sex	1
Insertive penile-oral sex	0.5

Sexual Risk Scale

SAFEST:	Abstinence, Fantasy (phone/cyber sex) Mutual long-term monogamy between two uninfected non-IDU Hugging, massaging, kissing Body-to-body rubbing without penetration Mutual masturbation without sharing fluids
SAFER:	Oral sex with a barrier (condom or dental dam) Vaginal intercourse with a correctly used condom Anal intercourse with a correctly used condom
UNSAFE:	Oral sex without a barrier (especially risky for other STD)
VERY UNSAFE	Vaginal intercourse without a condom Anal intercourse without a condom

Male Condoms

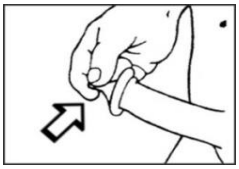
Although many people mistakenly assume that all men know how to correctly use condoms, incorrect use is common and is a major cause of condom failure.

Remember:

- Grease, oils, lotions, or petroleum jelly (Vaseline) weaken latex.
- DO NOT USE THEM. Use only water-based jelly, cream or liquid that does not have oil in it.
- Use a new condom each time you have sex.
- Use only latex or polyurethane condoms (lambskin provides no protection from STDs)
- Store condoms in a dark, dry place at room temperature.
- Do not use a condom that may be old or damaged (unusually sticky, brittle or dried out, color is uneven or has changed), or if the condom wrapper is damaged.

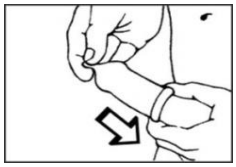
Male Condoms

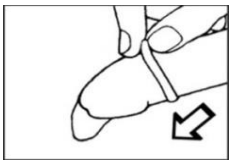
1. Open the package carefully. Never bite it or use scissors.
2. Put on a condom when the penis is erect, before any penetration.
3. If the condom doesn't have a “reservoir end,” squeeze tip of condom to remove air, leaving some slack to hold the pre-ejaculate and semen.



Male Condoms

6. Hold the condom by the tip and unroll it so it covers the entire erect penis.
7. If the penis is uncircumcised, pull the foreskin back before putting on the condom.
8. After ejaculation, hold the condom close to the base of the penis and carefully withdraw.
9. Immediately throw away used condoms.
10. If you feel a condom break while having intercourse, stop and withdraw immediately



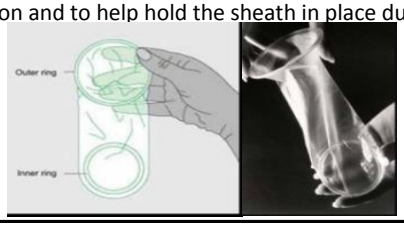


Female Condoms

BEFORE INTERCOURSE:

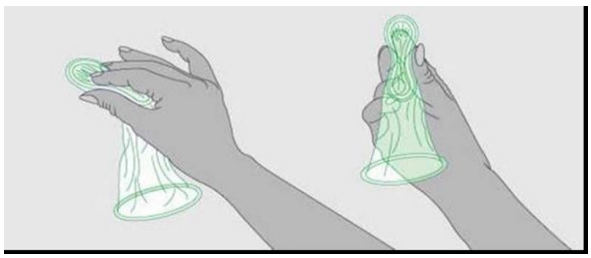
Open the female condom package carefully; tear at the notch on the top right of the package. Do not use scissors or a knife to open.

The outer ring of the female condom covers the area around the opening of the vagina. The separate inner ring found inside the condom is used for insertion and to help hold the sheath in place during intercourse.



Female Condoms

While holding the sheath at the closed end, grasp the flexible inner ring and squeeze it with the thumb and second or middle finger so it becomes long and narrow.



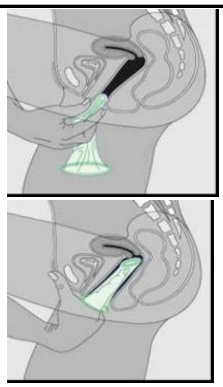
Female Condoms

Choose a position that is comfortable for insertion; squat, raise one leg, sit or lie down.

Gently insert the inner ring of the Female Condom into the vagina. Feel the inner ring go up and move into place.

Place, the index finger on the inside of the condom, and push the inner ring up as far as it will go. Be sure the sheath is not twisted. The outer ring should remain on the outside of the vagina.

The female condom is now in place and ready for use with your partner.



Harm Reduction for Injecting Drug Users

For better or worse, licit and illicit drug use is part of our world and we must work to minimize its harmful effects rather than simply ignore or condemn it.

Clinicians should ensure that substance users are engaged in medical care regardless of whether or not they are actively using drugs.

Drug use is a complex, multi-faceted phenomenon that encompasses a continuum of behaviors from severe abuse to total abstinence. We must acknowledge that some ways of using drugs are clearly safer than others.

"Harm reduction" is a set of practical strategies that reduce negative consequences of drug use, incorporating a spectrum of strategies from safer use; to managed use; to abstinence. Harm reduction strategies meet drug users "where they're at" – addressing conditions of use along with the use itself.

Harm Reduction for Injecting Drug Users

Stress the following messages when talking with IDUs:

- The best way to prevent HIV, or the hepatitis B and C viruses is to NOT inject drugs.
- Entering substance abuse treatment can help to reduce or stop injecting. This will lower your chances of infection.
- Get vaccinated against hepatitis A and hepatitis B. These types of viral hepatitis are preventable with vaccines.

Harm Reduction for Injecting Drug Users

Stress the following messages when talking with IDUs:

- If the IDU cannot or will not stop injecting, advise them to:
  1. Use a new, sterile syringe obtained from a reliable source to prepare and divide drugs for each injection.
  2. Never reuse or share syringes, water, cookers, or cotton.
  3. Use sterile water to prepare drugs each time, or at least clean water from a reliable source.
  4. Keep everything as clean as possible when injecting.

Harm Reduction for Injecting Drug Users

If you can't use a new, sterile syringe and clean equipment each time, then disinfecting with bleach may be better than doing nothing at all:

1. Fill the syringe with clean water and shake or tap. Squirt out the water and throw it away. Repeat until you don't see any blood in the syringe.

2. Completely fill the syringe with fresh, full-strength household bleach. Keep it in the syringe for 30 seconds or more. Squirt it out and throw the bleach away.

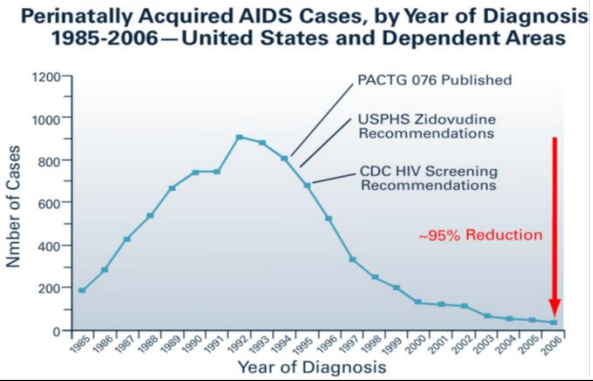
3. Fill the syringe with clean water and shake or tap.

4. Squirt out the water and throw it away.

Perinatal Issues

CDC estimates that globally, as many as 1,600 babies are infected daily and over half a million yearly.

In 2004 the National Institutes of Health showed that the use of AZT by U.S. pregnant women and their newborn significantly reduces the baby's risk of maternally-transmitted HIV infection from 25% down to 2%.



Perinatal Testing

Still many women in the US are not tested prior to becoming pregnant and may receive care late in their pregnancy or not until the time of delivery.

This is too often the case for minority women with few resources.

Because of the increased risk of HIV infection, CDC recommends that HIV testing be included for all women along with other routine prenatal tests.

HIV testing is to be presented as a routine part of prenatal testing and will be performed unless the women chooses to "opt-out" of the test. Women must sign an informed consent and receive pre and post-test counseling.

Rapid testing (also with the opt-out approach) is recommended for women who present for labor and delivery who have not recently had an HIV test.

Perinatal Prevention

To reduce the risk of transmission, AZT should be administered to the HIV positive mother at doses of 100mg PO five times per day from 14-34 weeks of gestation, followed by IV AZT 2mg/kg load and 1mg/kg/hour during delivery.

The baby should then be administered 2mg/kg PO q6h for the first six weeks of life.

Complete protocols and recommendations for perinatal care are available at

http:// aidsinfo.nih.gov/ContentFiles/PerinatalGL.pdf

NOTE: Babies born to HIV infected mothers will test positive at birth for antibodies. These are maternally-transmitted antibodies, so they do not indicate that the baby is infected. These maternally-transmitted antibodies will disappear within 15 months. If the infant continues to be antibody positive at that point, it is because the baby is infected and is now producing their own antibodies.

Chapter Three:

Management of HIV in the healthcare workplace

Occupational Prevention

The Occupational Safety and Health Administration (OSHA) issued specific standards concerning bloodborne pathogens in the workplace (United States Department of Labor, 1992) to decrease occupational exposure in health care workers. Employers must provide the following:

- Free hepatitis B immunization for employees exposed to blood and body fluids;
- Personal Protective Equipment (PPE = latex gloves, hypoallergenic gloves, goggles, gowns and face masks);
- Closable and puncture-resistant containers for sharps disposal;
- Medical evaluations for exposed employees and confidential treatment;
- Employers must also guarantee that standard precautions and work practice controls are followed;
- Employers must train employees about prevention during working hours. After initial training during orientation, a yearly review to reinforce regulations is essential.

Occupational Prevention

The CDC has determined that the following body fluids require Universal Precautions to protect the health care worker against bloodborne infections (HIV, HBV, HCV):

- blood or body fluids containing blood
- semen (includes pre-ejaculate)
- vaginal secretions
- cerebrospinal fluid
- synovial fluid
- pleural fluid
- peritoneal fluid
- pericardial fluid
- amniotic fluid
- saliva in dental settings (due to blood)
- tissues, mucous membranes or non-intact skin

Occupational Prevention

The CDC has also determined that the following body fluids do not require Universal Precautions to protect the health care worker against bloodborne infections (HIV, HBV, HCV) unless they contain visible blood:

- feces
- nasal secretions
- sputum
- sweat
- tears
- urine
- vomitus
- saliva (except in dental settings)

Occupational Prevention

OSHA requires certain work environment controls. Eating, drinking, smoking, applying cosmetics, and handling contact lens are not permitted in areas where blood and/or body fluids are present. Food and drinks are not permitted in refrigerators that contain blood, body fluids, or tissues. Suction equipment must be available to avoid mouth suctioning of blood, meconium, or respiratory secretions. Eyewash stations must be readily accessible for splashes to the eye.

Appropriate barriers are the first line of defense in decreasing occupational exposure to HIV. Every patient is considered potentially infectious. Gloves should be worn whenever there is a potential for direct skin contact with blood such as during venipuncture, when coming into contact with mucous membranes, non-intact skin, or items and surfaces that contain blood or body fluid. Latex gloves provide more protection than synthetic gloves, and double gloving is always an option. Even with a needlestick puncture, gloves may decrease the amount of blood transferred.

Occupational Prevention

Masks, protective eyewear and face shields are to be used whenever blood or body fluids may splatter, splash, spray or become aerosolized.

Gowns, lab coats, or aprons are to be used during procedures in which clothing may be soiled with blood or body fluids. Gowns, goggles and masks should not allow blood or body fluids to reach clothing, undergarments, and skin or mucus membranes. Gowns made of single-layer polyethylene film offer the greatest protection, and reinforced gowns offer adequate protection in most situations. Goggles should have solid side shields to fully protect the eyes. Masks may be purchased which include eye protection.

Occupational Prevention

Surgical caps or hoods are to be used when blood or body fluid may splash or spatter onto the head, and fluid proof shoe covers are to be used if shoes may become contaminated or soaked with blood or body fluids.

Sharps should be respected. Where possible, needleless or needle- sheathing devices are recommended. Needles should never be recapped. If absolutely necessary, hollow-bore needles can be recapped by using a one- handed “scoop” method or with a mechanical recapping device.

Needles, knife blades and lancets should be disposed of in closable, puncture-resistant, biohazardous-labeled containers. Needles should not be placed on food trays, in beds, or in routine waste containers.

Occupational Prevention

- Additional practices that reduce the risk of infection include:
- Frequent, thorough hand hygiene, including after removal of gloves;
- Changing gloves between patients;
- Removal of personal protective equipment immediately after contamination , or when leaving the work area;
- Using designated areas and containers for the storage, disposal, or cleaning of personal protective equipment;
- Using safer medical equipment such as self-sheathing syringes;
- Avoid bending, breaking or recapping of needles and other sharps;
- Disposal of sharps in puncture resistant, disposable sharps containers;
- Removal of sharps containers in a timely manner before they are over-filled;
- Do not eat, drink or apply cosmetics or contact lenses in areas where potential occupational exposure may exist;
- Do not store food and drink in refrigerators or cabinets, which may contain blood or other body fluids.

Occupational Prevention

As of December 2002, of the adults reported with AIDS, 24,844 had a history of employment in healthcare, representing 5.1% of the 486,826 AIDS cases reported to the CDC for whom occupational information was known.

Only fifty-seven of these healthcare personnel in the US have been documented as having seroconverted to HIV following occupational exposures.

These exposures included: 48 with percutaneous exposure; 5 with mucous membrane and/or skin exposure, 2 with both percutaneous and mucocutaneous exposure, and 2 with unknown routes of exposure. Forty-nine healthcare personnel were exposed to HIV-infected blood, 3 to concentrated virus in a laboratory, and 1 to visibly bloody fluid, and 4 to an unspecified fluid.

No new documented cases of occupationally acquired HIV/AIDS have been reported since December 2001.

Post-Exposure Prophylaxis (PEP)

In 2005, the Centers for Disease Control recommended a 28-day HAART regimen (Post-Exposure Prophylaxis or PEP) for those who have been exposed to HIV.

Here is what you should do if you are exposed to the blood or other potentially infectious material of a patient.

Immediately:

- Wash needlesticks with soap and water.
- Flush splashes to the nose, mouth, or skin with water.
- Irrigate eyes with clean water, saline or sterile irrigants.
- Report the exposure to the department responsible for managing exposures. Prompt reporting is essential for evaluation and initiation of post- exposure prophylaxis (PEP) as soon as possible (if indicated). Post-exposure laboratory tests will be performed to evaluate seroconversion status for one year after exposure.

Post-Exposure Prophylaxis (PEP)

(Time is Critical!)

The drugs have demonstrated effectiveness in preventing the virus (79% or better) in those who received treatment within the initial 24 hours of exposure.

The effectiveness falls to 52% of the time in those who are treated within 72 hours.

Those not treated within the first 72 hours should seek expert advice as soon as possible (call the PEPline at 1-888-448-4911).

Post-Exposure Prophylaxis (PEP)

Basic HIV Post-Exposure Prophylaxis Regimens:

Zidovudine (Retrovir, AZT) 600 mg. per day, in two or three divided doses + Lamivudine (Epivir; 3TC) 150 mg. twice daily. Can be given as a single table (Combivir) twice daily.

Alternate Basic Regimens

Lamivudine (3TC) 150 mg. twice daily + Stavudine (Zerit; d4T) 40 mg. twice daily (if body weight is <60 kg., 30 mg. twice daily).

Didanosine (Videx, ddI) 400 mg. (if body weight is <60 kg., 125 mg. twice daily) daily, on an empty stomach + Stavudine (d4T) 40 mg. twice daily (if body weight is <60 kg., 30 mg. twice daily).

Post-Exposure Prophylaxis (PEP)

The PEPline offers health care providers around the clock advice on managing occupational exposure to HIV and hepatitis B and C. National Clinicians' Post Exposure Prophylaxis Hotline is

1-888-448-4911 (24 hours a day – 7 days a week).

Warmline (National HIV Telephone Consultation Service) is 1-800-933-3413, offering treating clinicians current HIV clinical and drug information and expert case consultation.

Chapter Four:

Transmission Categories and Epidemiology; Appropriate Attitudes & Behaviors

Identified Risk Behaviors:

Transmission of HIV occurs when an infected person's blood, semen or vaginal secretions enters an uninfected person's body, allowing HIV access to CD4+ cells. There are only a few ways this is likely to happen with infectious body fluids:

Blood – injection drug use, sexual transmission, healthcare, perinatal
Semen – sexual transmission
Vaginal secretions – sexual transmission

Therefore, CDC has listed the following as transmission categories for HIV:

- MSM = Men who have sex with men
- IDU = Injecting Drug Users
- MSM/IDU = Men who have sex with men and are injecting drug users
- HRH = High-risk heterosexuals (contact with a person known to have HIV, or to be at high risk for HIV infection)
- Other (includes hemophilia, blood transfusion, perinatal, and risk not reported or not identified).

Identified Risk Behaviors:

Terms used to describe transmission categories describe HIV risks; not populations. It is important to understand why these terms are used and to use them correctly.

"MSM" is used instead of "gay" or "bisexual" because many men who have sex with men deny that fact or otherwise refuse to label themselves with these terms. And not all "gay" men are sexually active. "Men who have sex with men" describes the behavior that may put a person at risk. Prevention messages should target MSM rather than using labels that alienate people and create barriers. Only MSM who practice unsafe sex with an infected person are at risk of infection.

"IDU" stands for "injecting drug user." It is used to describe those who inject drugs, illicit or otherwise. Not all people who inject drugs do so intravenously, so the term "intravenous drug user" is not appropriate to use – it is not inclusive for skin poppers, steroid injectors, hormone injectors, etc. Only IDU who share injection equipment, supplies or contaminated drugs with an infected person are at risk of infection.

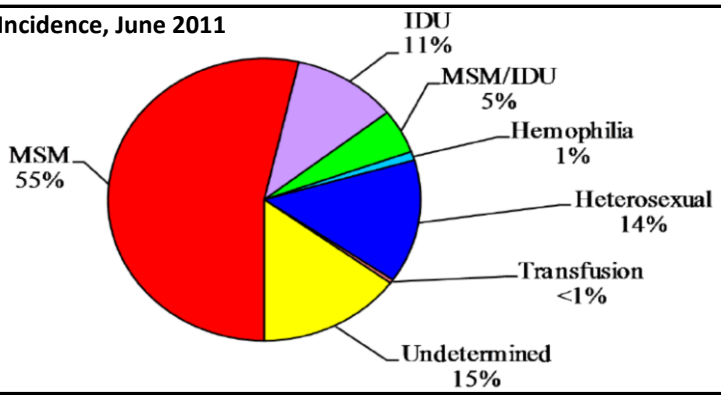
Identified Risk Behaviors:

Because so many MSM and IDU have been infected, those men with HIV who belong in both categories are referred to as "MSM/IDU" since we can never be certain which way HIV was transmitted. Only MSM/IDU who practice unsafe sex with an infected person or who share injection equipment or supplies with an infected person are at risk of HIV.

Just as not all MSM or IDU are at high risk of HIV, nor are all those who are heterosexually oriented. "High- risk heterosexuals" or "HRH" specifically refers to those heterosexuals with sexual contact with MSM with HIV, an IDU with HIV, or another heterosexual who has documented HIV.

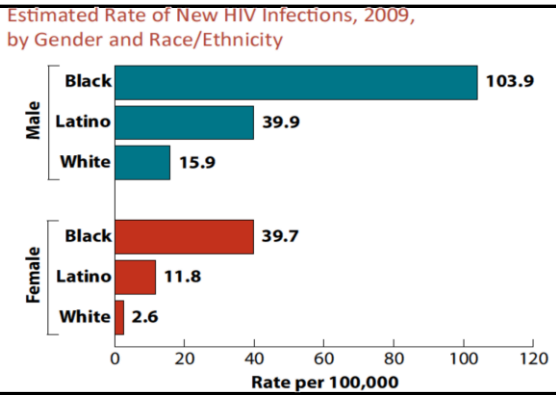
Since the advent of HIV testing, the blood supply and coagulation therapies for hemophiliacs have been safer than ever. Also, with the perinatal HIV- prophylaxis in place, fewer perinatal cases are diagnosed each year. Sometimes, people with AIDS are not properly interviewed, or die before being interviewed, or are lost to follow-up before the physician has adequately reported risk information. All of these people with HIV fall into CDC's "other" transmission category until additional risk information becomes available.

Transmission Categories for Kentucky HIV Incidence, June 2011

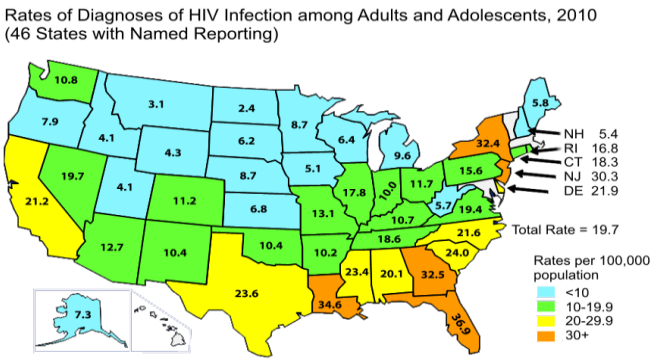


Estimated U.S. HIV Incidence, by Race, 2009

The racial disparity of HIV has reached epic proportions. In 2009 an estimated 42,011 people were diagnosed with HIV infection in the 40 states with confidential name-based reporting. Of these, almost 44% were black patients.



Rates of Diagnoses of HIV Infection, 2010



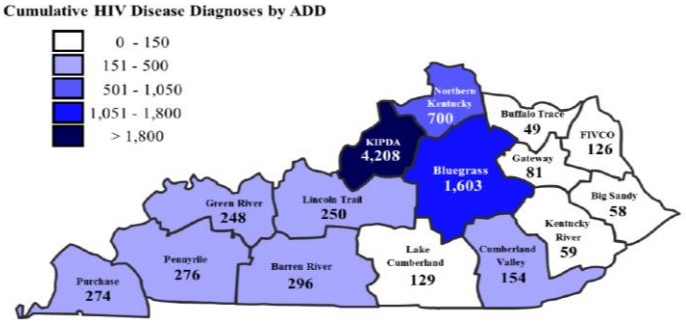
Reported Number of Kentucky AIDS Cases,All Ages, Cumulative through June 2011

In Kentucky, both HIV and AIDS cases are reported. However, only data for AIDS cases is being released until we have had several years of collecting HIV data.

As of June 2011 there have been a total of 8,121 AIDS cases reported in Kentucky, of which 99% were adults or adolescents.

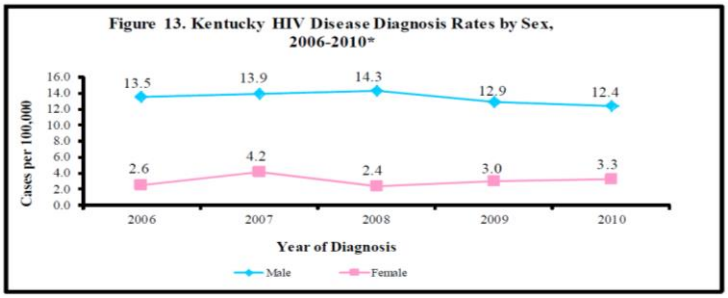
The cumulative number of pediatric AIDS cases since the beginning of the epidemic in Kentucky was 71 by 2011 (compared to 9,448 in the U.S. by 2009). Of these, 55 were perinatal, 13 were from blood/coagulation treatment, and 3 had no risk reported. From 2006 - 2011 Kentucky averages less than 2 pediatric cases per year.

Reported Number of Kentucky AIDS Cases, All Ages, Cumulative through June 2012

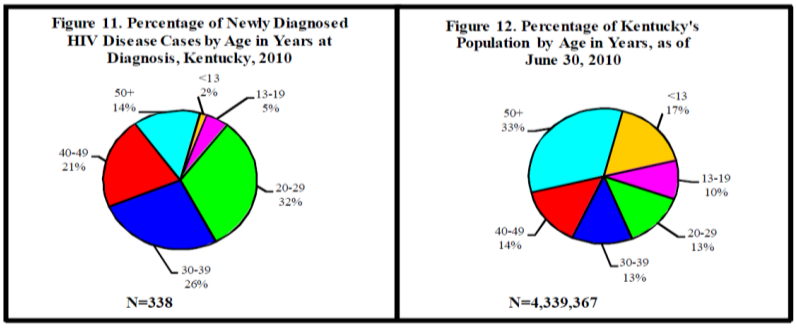


Note: 2 cases missing ADD at time of diagnosis. Total cumulative cases=8,513

Trends in HIV Disease Diagnosis Rates in Kentucky by Sex, 2006-2010

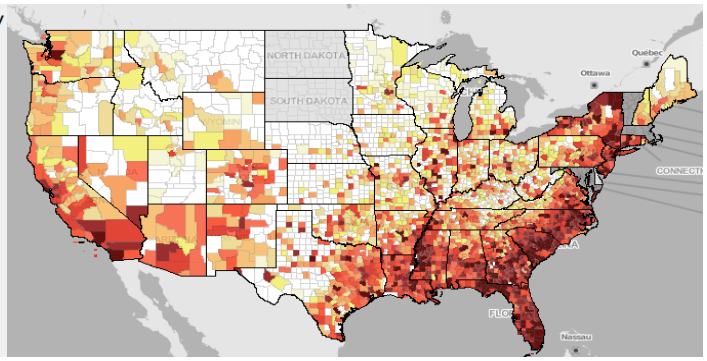


New HIV Disease Cases by Age at Diagnosis, Kentucky



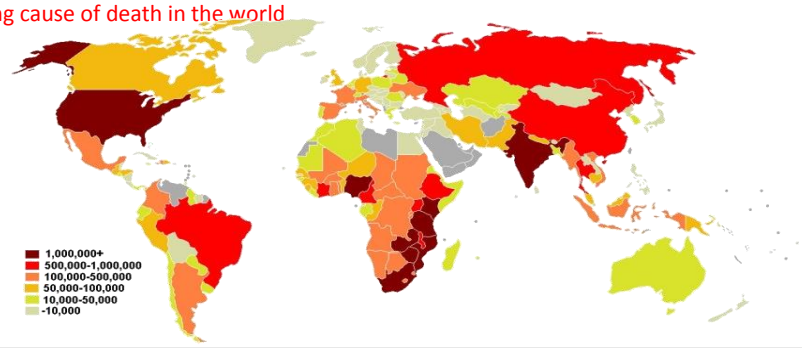
2009 Rate of adults/adolescents living with an HIV diagnosis per 100,000 population

- 0 to 40
- 41 to 54
- 55 to 66
- 67 to 81
- 82 to 102
- 103 to 133
- 134 to 173
- 174 to 248
- 249 to 385
- 386+
- Data not shown *
- Data not released to AIDSVu **
- Data not available ***



Estimated number of people worldwide living with HIV/AIDS in 2008

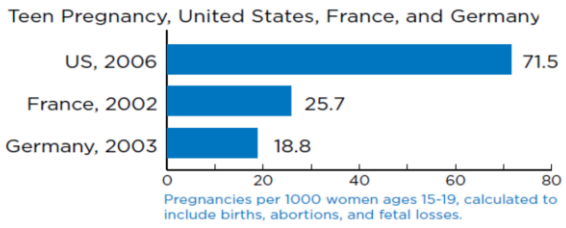
AIDS continues to be the 4th leading cause of death in the world



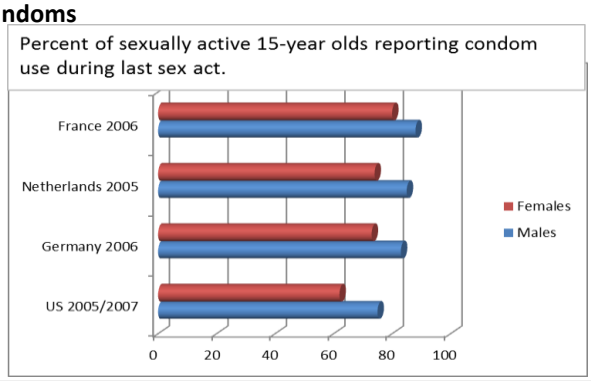
Comparison of American and European Youth HIV Risks

In much of Europe, two things create greater, easier access to sexual health information and services for all people, including teens. They are: 1) societal openness and comfort in dealing with sexuality, including teen sexuality; and 2) pragmatic governmental policies.

The result – better sexual health outcomes for European teens when compared to U.S. teens.



Comparison of American and European Use of Condoms



Self-Awareness of Prejudice

Across the world, SEX and DRUG USE
play critical roles in the HIV pandemic …
as do attitudes and beliefs about sexuality and comprehensive education vs. abstinence-only programs (sex and drugs).
Just because of who they are, those affected are often subject to criticism, discrimination, fear and hatred.
People who come into our care desire and deserve to be offered services with dignity, respect and compassion.

Self-Awareness of Prejudice

All people, including healthcare providers, are at risk of allowing their own values to interfere with patient encounters:

- Stereotyping / Labeling / Assuming
- Discriminating
- Judging / Pushing your own values

These reactions are due to:

- Fear
- Denial
- Anger
- Prejudice against groups (homophobia, racism)
- Lack of knowledge

Self-Awareness of Prejudice

Why is it that when healthcare workers review a case of AIDS in grand rounds, they almost always mention the risk factors of that patient?

In most cases, how a person became infected with HIV is not a concern for the caregiver.

Doing so mostly attempts to point out the differences between the patient and the caregiver … leading to exclusion, discrimination, and substandard healthcare.

Self-Awareness of Prejudice

With fewer than 1% of AIDS cases in the US under age 13, why must children with AIDS be used to pull at the heartstrings of America?

Do adults with AIDS matter less?
If you call children the "blameless victims," what do you call the adults?
Do men deserve AIDS more than women?
Do injecting drug users deserve AIDS more than transfusion recipients?
Do African Americans deserve AIDS more than other Americans?
Do men who have sex with men deserve AIDS more than drug users?
...NO ONE DESERVES AIDS

Self-Awareness of Prejudice

Healthcare providers often believe that drug users do not care about their own health; so why should they?
However, given the information and resources, drug users do reduce their risks of infection. Needle exchange programs have proven this repeatedly. Yet these programs remain illegal in most areas, including Kentucky.
Drug users do care about their health. Are you teaching life-saving information on how to safely inject drugs for those who need to know??
Withholding harm-reduction information that is known to save lives is an example of the prejudice thwarting HIV prevention efforts.
Remember - if you are not part of the solution, you are part of the problem.

Self-Awareness of Prejudice

Be aware of your own feelings toward drug users and people who have different sexual orientations, cultural norms, beliefs, family structures, lifestyles or values.

Provide quality healthcare …Nothing more. Nothing less.

Follow the GOLDEN RULE:

Treat others the way you want to be treated.

Chapter Five:

Legal Issues;
Risk Assessment;
Reporting Cases

The Americans with Disabilities Act and HIV/AIDS

Discrimination against people with HIV has been such a problem that federal laws have been written to protect them against prejudice. The Americans with Disabilities Act (ADA) gives federal civil rights protections to individuals with disabilities similar to those provided to individuals on the basis of race, color, sex, national origin, age, and religion. It guarantees equal opportunity for individuals with disabilities in public accommodations, employment, transportation, state and local government services, and telecommunications. People who have HIV are protected by the ADA. An individual is considered to have a "disability" if they have a physical or mental impairment that substantially limits one or more major life activities, has a record of such an impairment, or is regarded as having such an impairment. Persons with HIV disease, both symptomatic and asymptomatic, have physical impairments that substantially limit one or more major life activities and are, therefore, protected by the law.

The Americans with Disabilities Act and HIV/AIDS

Persons who are discriminated against because they are regarded as being HIV- positive are also protected. For example, a person who was fired on the basis of a rumor that they had AIDS, even if they did not, would be protected by the law.

Moreover, the ADA protects persons who are discriminated against because they have a known association or relationship with an individual who is HIV-positive. For example, the ADA would protect an HIV-negative man who was denied a job because his partner had AIDS.

The ADA prohibits employment discrimination against qualified individuals with disabilities. A "qualified individual with a disability" is a person who meets legitimate skill, experience, education, or other requirements of an employment position he or she holds or seeks, and who can perform the essential functions of the position with or without reasonable accommodation.

The Americans with Disabilities Act and HIV/AIDS

Employers must provide "reasonable accommodation." This is any modification or adjustment to a job, the job application process, or the work environment that will enable a qualified applicant or employee with a disability to perform the essential functions of the job, participate in the application process, or enjoy the benefits and privileges of employment.

Examples of "reasonable accommodations" include:

- Making existing facilities readily accessible to and usable by employees with disabilities;
- Restructuring a job;
- Modifying work schedules;
- Acquiring or modifying equipment;

Reassigning a current employee to a vacant position for which the individual is qualified.

For more information about the ADA, contact the ADA Information Line for documents and questions at 800-514-0301 (Voice), 800-514-0383 (TDD).

KRS 214.625 Consent and Confidentiality

The Kentucky General Assembly finds that public health will be served by providing informed, voluntary, and confidential use of tests designed to detect HIV.

A general consent form is to advise patients that they may be tested for HIV, hepatitis, or any other blood-borne infectious disease as part of a medical procedure if ordered by a doctor for diagnostic purposes.

In an emergency where informed consent cannot be obtained, there is no requirement to obtain a previous informed consent.

No public health department or person in this state shall conduct a testing program for AIDS or HIV without first registering with the Cabinet for Health and Family Services and meeting all necessary requirements.

KRS 214.625 Consent and Confidentiality

A physician who orders the test must inform the patient of a positive result for HIV, as well as providing information and counseling concerning the infection and known medical implications.

Confirmatory tests must be performed prior to informing the patient of a positive test result.

No person in Kentucky shall perform a test to identify HIV, or its antigen or antibody, without obtaining informed consent from the patient except for emergencies situations where it is unobtainable.

KRS 214.625 Consent and Confidentiality

No person who has obtained or has knowledge of a test result shall disclose or be compelled to disclose the identity of any person upon whom a test is performed, or results of the test that permit the identification of the subject of the test, except to the following persons:

1. The subject of the test, or legal representative;
2. Those designated in a legally effective release of the test by the patient;
3. Physician, Nurse, or other provider with a legitimate need to know;
4. Health care providers consulting between themselves regarding diagnosis and treatment;
5. The Cabinet, in accordance with rules for reporting and controlling the spread of disease as required by state law;

KRS 214.625 Consent and Confidentiality

(continued)

6. Health care provider which processes or uses a human body part from an infected person; or semen provided prior to July 13, 1990 for use in artificial insemination;
7. Health facility staff committees, for purposes of evaluation;
8. Authorized medical or epidemiological researchers;
9. A parent, foster parent, or legal guardian of a minor, a crime victim, or a person specified in KRS 438.250;
10. A person allowed access by a court order.

Confidentiality & Security of Kentucky HIV/AIDS Data

The Kentucky HIV/AIDS Branch has been collecting AIDS case information including names for 25 years and has never had a breach of confidentiality.

Names are never transmitted to the CDC.

The Surveillance Team of the HIV/AIDS Branch is housed inside a secure, locked room with restricted access.
Electronic information stored in the HIV/AIDS Reporting System(HARS) is on a stand-alone computer that is not connected to the Internet and is not accessible to unauthorized persons.

Kentucky Reporting Law

902 KAR 2:020 (7). Disease Surveillance(HIV/AIDS). RELATES TO: KRS 211.180(1), 214.010, 214.645, 333.130. STATUTORY AUTHORITY: KRS 194A.050, 211.090(3), EO 2004-726

Even if you think the case may have already been reported by someone else …
Physicians and Medical Laboratories shall report within FIVE (5) days of diagnosis:
1. Any Positive test result for HIV infection;
2. CD4+ assay including absolute CD4+ cell counts and CD4+%;
3. HIV detectable Viral Load Assay; and
4. A positive serologic test result for HIV infection; or
(b) A diagnosis of AIDS that meets the definitions of AIDS established within the Centers for Disease Control and Prevention (CDC) guidelines and reported in the: "Adult HIV/AIDS Confidential Case Report Form" or the "Pediatric HIV/AIDS Confidential Case Report Form".

Kentucky Reporting Law

902 KAR 2:020 (7). Disease Surveillance(HIV/AIDS). RELATES TO: KRS 211.180(1), 214.010, 214.645, 333.130. STATUTORY AUTHORITY: KRS 194A.050, 211.090(3), EO 2004-726

3. A report for a person with HIV infection without a diagnosis of AIDS shall include:
   (a) The patient's full name;
   (b) Date of birth, using the format MMDDYY;
   (c) Gender;
   (d) Race;
   (e) Risk factor, as identified by CDC;
   (f) County of residence;
   (g) Name of facility submitting report;
   (h) Date and type of HIV test performed;
   (i) Results of CD4+ cell counts and CD4+%;
   (j) Results of viral load testing;
   (k) PCR, HIV culture, HIV antigen, if performed;
   (l) Results of TB testing, if available; and
   (m) HIV status of the person's partner, spouse or children.
4. Reports of AIDS cases shall include the information in subsections (1) through (3) of this section; and
   (a) The patient's complete address; (b) Opportunistic infections diagnosed; and (c) Date of onset of illness.

Talking with Your Patients about Behavioral Risk Factors for HIV and AIDS

TALK WITH YOUR PATIENTS ABOUT THEIR RISKS BEFORE YOU TEST THEM!

Patients may be uncomfortable disclosing personal risk factors and hesitant to respond to questions about sensitive issues, such as sexual behaviors and illicit drug use.

However, evidence suggests that when asked, patients will often discuss behaviors that increase their risk of acquiring HIV. Evidence also suggests that some patients have greater confidence in their clinician's ability to provide high-quality care when asked about sexual and STD history during the initial visits. Of course, the more comfortable you are with discussing these issues the more comfortable your patients will be. Practice makes perfect.

Talking with Your Patients about Behavioral Risk Factors for HIV and AIDS

TALK WITH YOUR PATIENTS ABOUT THEIR RISKS BEFORE YOU TEST THEM!

If you wait until telling the patient they have a positive HIV test, you have missed any real opportunity to appropriately discuss risk.

Once you have told the patient they are positive, it is unfair and unrealistic to expect them to be fully participatory in any first-time interview.

ALWAYS TALK WITH YOUR PATIENTS ABOUT THEIR RISKS BEFORE YOU TEST.

Ideas for Talking with Your Patients about Risk Factors

Put your patients at ease. Reassure your patients that their responses will remain confidential.
Let them know that you ask all of your patients these types of questions (as you should be).
Tell them that the information they provide about their sexual and drug-use behaviors will help you provide the best possible care. Use open-ended questions to avoid simple "yes" or "no" responses. This encourages patients to discuss personal risks and the circumstances in which risks occur. Open-ended questions also help you gather enough detail to understand potential transmission risks and make more meaningful recommendations for prevention of secondary transmission. Respect a patient's choice to not answer a question. This increases the chance that they will provide the information at a later date.
At the end of the session, summarize the patient's responses to make certain that both you and your patient understand what was said. Encourage the patient to ask questions about any issues they might not have understood, and, if needed, schedule a follow-up appointment.

Some things to remember when speaking with your patients about risk factors

Honest responses may be more forthcoming if the question is worded in such a way to "normalize" the behavior and to elicit discussion with the patient, not just a "yes" or "no."

- "Some people inject drugs. Tell me about any of your experiences with injecting drugs."
- "Many people have anal intercourse. What are your experiences with that?"
- "Some people trade sex for drugs or money. Tell me your history with that."

Labels can be misleading… so please quit using them.

• Some men do not consider themselves "gay" if they practice same sex anal insertive intercourse, even though they may see their receptive partners as "gay." • The question,"Are you a homosexual?" may be answered with "no" by a person who has had only a few same sex encounters or who considers him/herself to be "bisexual" or "straight," regardless of the full picture of their sex life. Men on the "down-low" are likely to dismiss your advice because "you're not talking about them." • Describe behaviors instead of assigning labels to the behavior. Use terms "injecting drug user", "men who have had sex with men","men who have had sex with women", or "sex worker."

Chapter Six:

Comprehensive Human Services

Where to Report Kentucky's AIDS & HIV Cases

Report either by phone or mail. When mailing, please place case forms inside of two (2) sealed envelopes, both marked CONFIDENTIAL.

For reports from Jefferson, Henry, Oldham, Bullitt, Spencer, Shelby and Trimble counties:		For reports from the other 113 counties:
Reporting by Phone: Fay Davis at 502-574-6570		Reporting by Phone: Tim Crawford, Epidemiologist Medina Tipton, Surveillance Coordinator Julie Nakayima, Surveillance Technician at (866) 510-0008
Reporting by Mail: Louisville Metro Health Dept. Attn: Fay Davis 400 East Gray St., Room 317 Louisville, KY 40202		Reporting by Mail: Kentucky Department for Public Health Attn: Medina Tipton 275 E. Main Street HS2E-C Frankfort, KY 40621

HIV Test and Confidential HIV/AIDS Case Report Forms available at:

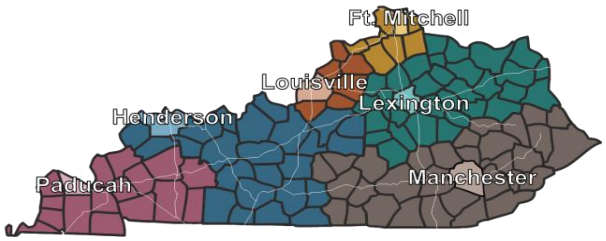
http://chfs.ky.gov/forms

Federal and State HIV/AIDS Services in Kentucky

The Kentucky HIV Care Coordinator Program arranges for quality care and services to HIV infected people & their families in a timely and consistent manner across a continuum of care.

- Case Management
- Entitlement benefits
- Medical care
- Prevention counseling
- Housing
- Counseling
- Transportation
- Legal services
- Nutrition services

Care Coordinator Regions and Centers



Federal and State HIV/AIDS Services in Kentucky

Kentucky HIV Care Coordinator Program Goals:

- Optimize client's self-care by empowering them to direct their own life decisions.
- Identify the extent of the client's informal support systems.
- Assist the client in locating/accessing services like entitlement benefits (Medicaid and/or Social Security Disability Services), medical care, housing, counseling, transportation, legal and nutrition services.
- Identify/establish referral systems with area health care and social service providers and community-based HIV organizations, and HIV counseling and testing sites.
- Ensure that duplication of services by formal and informal support systems does not occur.

Federal and State HIV/AIDS Services in Kentucky

Kentucky HIV Care Coordinator Program Goals (continued):

- Provide the client with educational information about disease transmission and maintenance of a healthy lifestyle, and encourage and reinforce good health habits and secondary prevention methods.
- Identify/document service needs and advocate for effective policies and resource development.
- Facilitate the initial and on-going education of health care and social service providers to the issues surrounding HIV disease.
- Ensure that program funding is appropriately used to meet the needs of HIV+ persons in a manner that coordinates funding streams and makes use of existing community resources and services.

Federal and State HIV/AIDS Services in Kentucky

Care Coordinators help to access the following assistance programs:

- Kentucky AIDS Drug Assistance Program (KADAP) – assists low-income, eligible Kentuckians with the purchase of AIDS-related medications prescribed for FDA-approved indications. 1-866-510-0005
- Kentucky Health Insurance Continuation Program (KHICP) – provides payments for continuing health insurance benefits for eligible individuals who are at risk of losing their employment-related or private-pay health insurance because of HIV disease.
- Kentucky Outpatient Health Care and Support Services Programs – provide assistance with a wide range of community-based medical and non-medical support services (physical and mental health care, housing, nutrition, and transportation services).
- Housing Opportunities for People With AIDS (HOPWA) – HUD assistance through contracted agencies of the Kentucky Housing Corporation.

Community Based Organizations

Eastern Area:

Harlan Countians for a Healthy Community
Hazard Perry County Community Ministries

Lexington Area:

AIDS Volunteers (AVOL)
American Red Cross
Area Health Education Center
Bluegrass Care Clinic (UK)
Bluegrass Farmworker Health Center
Episcopal Diocese AIDS Ministry
Moveable Feast
The Salvation Army of Central Kentucky

Community Based Organizations

Louisville Area:

AIDS Interfaith Ministries (AIM)
AIDS Services Center Coalition
American Red Cross
Area Health Education Center - Louisville
HIV/AIDS Legal Project
House of Ruth
Kentucky Hemophilia Foundation
Sisters and Brothers Surviving AIDS (SABSA)
The AIDS Project
Volunteers of America
Watson Memorial Baptist
WINGS Clinic (UL)

Community Based Organizations

Northern Area:

AIDS Volunteers of Northern Kentucky (AVNK)
AIDS Volunteers of Cincinnati (AVOC)
Area Health Education Center - Covington
Greater Cincinnati AIDS Consortium
I.N.D.Y (I'm Not Dead Yet) Project
University of Cincinnati's Holmes Clinic

Southern Area:

Mary Sacred Heart House
Westlake Primary Care

Western Area:

Heartland Clinic & Heartland Cares
Matthew 25 AIDS Services
Owensboro Area HIV/AIDS Task Force

END OF COURSE. Thank You.

This course meets the licensure requirements of KRS 214.610/615/620 for all professions

CHFS Approved HIV/AIDS Course # 0415-1566-M

To receive your certificate for this module you will need to complete the ONLINE quiz.

(Log into your TRAIN account at www.train.org and launch course 1021131, click on each Chapter link and hit the back arrow until you get to the first question for that chapter. Do this for each chapter.)

After the QUIZ, you will also need to complete an online evaluation of this course and TRAIN.

You will find a link to the evaluation above your "My Learning" Folder on the TRAIN home page.

When finished, you will find your certificate under the "My Learning" folder on the TRAIN home page.

Click on your certificate, print it and mail it to your licensure board. TRAIN certificates are NOT automatically forwarded to anyone ... you must download it and print it.

Retrospective studies show that HIV was present in humans as early as

a) 1981
b) 1970's
c) 1959
d) 1937

QUIZ Introduction **Chapter 1** Chapter 2 Chapter 3 Chapter 4 Chapter 5 Chapter 6	**HIV has a surface glycoprotein that has affinity for "____" on the surface of certain human cells.** **a) gp120** **b) protease** **c) nNRTI** **d) CD4+**

QUIZ Introduction **Chapter 1** Chapter 2 Chapter 3 Chapter 4 Chapter 5 Chapter 6	**One way that HIV destroys key immune cells is by "____" viral particles, rupturing the cell wall.** **a) replicating** **b) budding** **c) transcribing** **d) cleaving**

QUIZ Introduction **Chapter 1** Chapter 2 Chapter 3 Chapter 4 Chapter 5 Chapter 6	**A diagnosis of AIDS is made whenever a person is HIV-positive AND:** **a) has a CD4+ cell count below 200 cells per microliter blood** **b) CD4+ cells account for fewer than 14 percent of all lymphocytes** **c) has been diagnosed with one or more specific opportunistic infections** **d) each of the above** **e) any of the above**

QUIZ Introduction **Chapter 1** Chapter 2 Chapter 3 Chapter 4 Chapter 5 Chapter 6	**One common opportunistic infection that is included in the AIDS definition is:** **a) chlamydia** **b) night sweats** **c) tuberculosis** **d) syphilis**

QUIZ Introduction Chapter 1 **Chapter 2** Chapter 3 Chapter 4 Chapter 5 Chapter 6	**"____" are fluids that transmit HIV because they "____."** **a) vomit, nasal secretions // are commonly encountered** **b) saliva, tears, sweat // are transmitted during close contact** **c) blood, semen, vaginal secretions // contain cells with CD4+** **d) urine, feces // encountered during oral sex**

QUIZ Introduction Chapter 1 **Chapter 2** Chapter 3 Chapter 4 Chapter 5 Chapter 6	**Which of the following has the greatest risk of HIV transmission:** **a) insertive anal intercourse without condom** **b) needle-sharing injection drug use** **c) receptive penile-oral sex** **d) percutaneous needle stick**

QUIZ Introduction Chapter 1 **Chapter 2** Chapter 3 Chapter 4 Chapter 5 Chapter 6	**Condoms should be:** **a) stored in a wallet** **b) discouraged in favor of American abstinence-only programs** **c) used in addition to spermicides to avoid HIV** **d) put on before any sexual penetration**

QUIZ Introduction Chapter 1 **Chapter 2** Chapter 3 Chapter 4 Chapter 5 Chapter 6	**HAART stands for** **a) HIV/AIDS Antiretroviral Therapy** **b) Highly Addictive Antiretroviral Therapy** **c) Highly Active Antiretroviral Therapy**

QUIZ Introduction Chapter 1 **Chapter 2** Chapter 3 Chapter 4 Chapter 5 Chapter 6	**Recent research suggests that "____" should be done for every patient before they start taking HAART to determine which drugs may work for them.** **a) Western blot test** **b) a genotypic resistance test** **c) a pregnancy test** **d) an ELISA test**

QUIZ Introduction Chapter 1 **Chapter 2** Chapter 3 Chapter 4 Chapter 5 Chapter 6	**HIV becomes resistant to HAART because:** **a) HIV is intelligently designed and figures out how to become resistant** **b) doses of medication are missed** **c) new strains continue to emerge around the world**

QUIZ Introduction Chapter 1 **Chapter 2** Chapter 3 Chapter 4 Chapter 5 Chapter 6	**Given the information and resources, drug users do reduce their risks of infection. "____" have proven this repeatedly.** **a) Doctors** **b) Needle exchange programs** **c) ACT-Up groups** **d) CDC researchers**

QUIZ Introduction Chapter 1 Chapter 2 **Chapter 3** Chapter 4 Chapter 5 Chapter 6	**Safer sex recommendations, harm reduction for IDU, and universal precautions all have this in common:** **a) they describe how to avoid blood, semen and vaginal secretions** **b) they are mandated parts of HIV education for professionals in Kentucky** **c) if closely followed, they could help to end the epidemic** **d) are scientifically-based measures of effective prevention** **e) all of the above**

QUIZ Introduction Chapter 1 Chapter 2 **Chapter 3** Chapter 4 Chapter 5 Chapter 6	**"____" are the first line of defense in decreasing occupational exposure to HIV.** **a) Partner counseling and referral services** **b) Chart flagging and staff reminders** **c) Appropriate barriers**

QUIZ Introduction Chapter 1 Chapter 2 **Chapter 3** Chapter 4 Chapter 5 Chapter 6	**Additional practices that reduce the risk of infection include:** **a) testing all patients before having contact.** **b) wearing gloves when touching a patient.** **c) using safer medical equipment such as self-sheathing syringes** **d) referring patients with risks to specialists.**

QUIZ Introduction Chapter 1 Chapter 2 **Chapter 3** Chapter 4 Chapter 5 Chapter 6	**The post-exposure prophylaxis drugs have demonstrated effectiveness in preventing infection (79% or better) in those who received treatment within the initial "____" of exposure.** **a) 72 hours** **b) 24 hours** **c) 96 hours**

QUIZ Introduction Chapter 1 Chapter 2 **Chapter 3** Chapter 4 Chapter 5 Chapter 6	**If exposed to the blood or other potentially infectious material of a patient, you should immediately:** **a) wash needlesticks with soap and water.** **b) flush splashes to the nose, mouth, or skin with water.** **c) irrigate eyes with clean water, saline or sterile irrigants.** **d) report the exposure to the department responsible for managing exposures.** **e) all of the above**

QUIZ Introduction Chapter 1 Chapter 2 Chapter 3 **Chapter 4** Chapter 5 Chapter 6	**In 2009 alone, 44% of newly-diagnosed US HIV/AIDS cases were seen in "____".** **a) black patients** **b) women** **c) HRH** **d) MSM**

QUIZ Introduction Chapter 1 Chapter 2 Chapter 3 **Chapter 4** Chapter 5 Chapter 6	**AIDS is the "____" leading cause of death worldwide.** **a) 7th** **b) 2nd** **c) 4th** **d) 10th**

QUIZ Introduction Chapter 1 Chapter 2 Chapter 3 **Chapter 4** Chapter 5 Chapter 6	**Be aware of your own feelings toward drug users and people who have different "____," cultural norms, beliefs, family structures, lifestyles or values.** **a) types of insurance coverage** **b) genotypes** **c) sexual orientations**

QUIZ Introduction Chapter 1 Chapter 2 Chapter 3 Chapter 4 **Chapter 5** Chapter 6	**Newly diagnosed cases of HIV should be:** **a) reported to the Kentucky HIV/AIDS Branch** **b) evaluated for TB, STD, pregnancy, viral load, CD4+ count** **c) referred to the Dept. for Public Health for partner counseling and referral services** **d) all of the above**

QUIZ Introduction Chapter 1 Chapter 2 Chapter 3 Chapter 4 **Chapter 5** Chapter 6	**In Kentucky, diagnosed cases of HIV are to be reported to the state within "____."** **a) one month** **b) one week** **c) five days** **d) fourteen days**

QUIZ Introduction Chapter 1 Chapter 2 Chapter 3 Chapter 4 **Chapter 5** Chapter 6	**The Americans with Disabilities Act protects "____" against discrimination.** **a) the employer** **b) a person rumored to have AIDS** **c) fellow employees** **d) health care providers**

QUIZ Introduction Chapter 1 Chapter 2 Chapter 3 Chapter 4 Chapter 5 **Chapter 6**	**The "____" arranges for quality care and services to HIV infected people & their families in a timely and consistent manner across a continuum of care.** **a) Kentucky Department of Social Services** **b) HIV Consortium** **c) Kentucky HIV Care Coordinator Program** **d) Kentucky Outpatient Health Care and Support Services Program**

QUIZ Introduction Chapter 1 Chapter 2 Chapter 3 Chapter 4 Chapter 5 **Chapter 6**	**KADAP is a program that:** **a) assists low-income, eligible Kentuckians with the purchase of AIDS-related medications** **b) assists low-income, eligible Kentuckians with HIV prevention programs** **c) provides payments for continuing health insurance benefits**

QUIZ

Who Should Be Screened for HIV?

a) Patients in all health care settings.
b) Persons at risk for HIV infections should be screened annually.
c) All Pregnant women as part of prenatal screening.
d) Each of the above

QUIZ

What percentage of people infected with HIV are unaware of their infection?

a) 1%
b) 5%
c) 20%

QUIZ

The risk of maternal-transmission of HIV can be brought down to "____" by administering AZT.

a) 25%
b) 10%
c) 2%

QUIZ

The most common symptom of acute (primary) HIV infection is:

a) Kaposi's Sarcoma
b) Fever
c) Pneumonia
d) Candidiasis

QUIZ

Of the 6,447 Kentuckians infected with HIV by 2009, "____" had their HIV successfully suppressed by HAART.

a) 4,223
b) 3,273
c) 1,284
d) 788